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California Energy Commission
Dockets Office
Attn: Docket No. 03-IEP-01
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Sacramento, CA 95814-5512

In the Matter of:	)	Docket 03-IEP-01
Informational Proceeding and Preparation of the 2004 **Integrated Energy Policy Report (IEPR) Update**	)	Notice of Committee Workshop and White Paper Availability Re: Resource, Reliability and Environmental Concerns of Aging Power Plant Operations and Retirements

Dear Energy Commissioners and Staff:

Calpine Corporation ("Calpine") appreciates the opportunity to submit the following reply comments to the August 26, 2004, Committee Workshop on the Draft White Paper titled: Resource, Reliability, and Environmental Concerns of Aging Power Plant Operations and Retirements. Calpine's comments are as follows:

Calpine is alarmed at some of the draft white paper's conclusions regarding the relative efficiency and emission rates of aging power plants compared to modern combined-cycle generating plants as described in the Preliminary Staff Analysis on page 4 of the draft white paper. The draft white paper's findings on these topics do not agree with Calpine's experience operating state-of-the-art combined-cycle facilities in California and elsewhere throughout the United States. Additionally, some of the conclusions in the Preliminary Staff Analysis seem inconsistent with data presented in the body of the paper.

1. Efficiency of Aging Units Compared to Newer Units

On page 4 of the draft white paper, the section of the Preliminary Staff Analysis titled Efficiency of Aging Units Compared to Newer Units states: "…given their variability in operation, the aging boiler units under study are closer to 15 percent less efficient than newer combined-cycle plants on average (and closer to 10 percent less efficient if the six most inefficient units are eliminated from the aging plant sector average)."

However on page 84 of the draft white paper, Figure 6-11 shows the impact of plant utilization rate on heat rate for combined-cycle operation. Figure 6-11 indicates that,

when the utilization of a combined-cycle facility drops to about 8 percent, the heat rate increases to about 8,150 BTU/kwh and, when utilization reaches about 35 percent, the heat rate drops to about 7,500 BTU/kwh.

Comparing the average heat rate for the aging power plants under study in 2003 of 10,550 BTU/kwh (page 31 of the draft report) to the heat rates in Figure 6-11, at 8 percent utilization factor the aging power plant group was 29 percent less efficient than the combined-cycle plant (10,550/8,150 = 1.29). At 35 percent utilization, the aging power plant group was 41 percent less efficient (10,550/7,500 = 1.41).

Calpine owns and operates 48 combined-cycle power plants, and our experience with the regular operation of the facilities is consistent with the data presented in Figure 6-11. Calpine's three large combined-cycle facilities, Sutter, Los Medanos and Delta Energy Centers had relatively high utilization and an average net heat rate of less than 7,300 BTU/kwh for the entire year of 2003. In other parts of the country, combined-cycle facilities that were cycled and shut down at night, so that they regularly went through their most inefficient mode of operation, typically had average heat rates in the low to mid 8,000 BTU/kwh range.

Based on the data in Figure 6-11 and Calpine's own experience, Calpine requests that the conclusion on page 4 under Efficiency of Aging Units Compared to Newer Units be reexamined. Calpine's recommendation is to either change the efficiency comparison to reflect the heat rates indicated in Figure 6-11, or to eliminate the paragraph on page 4 altogether.

2. Emission Rates

Also on page 4, the section on Emission Rates begins: "Emission data from the U.S. EPA show that retrofitted units have emission rates per therm of gas burned (lbs/BTU) essentially identical to those of newer combined-cycle plants. However, because of relative efficiencies, the data also show that aging boiler units produce about 10-15 percent more emissions per unit of generation (lbs/MWh) than their combined-cycle counterparts, when operated in typical load-following mode."

The draft white paper indicates that the subset of aging power plants that installed SCR had an average NO_x emission rate of 0.13 lb/MWh. Calpine's Delta Energy Center had an average NO_x emission rate of 0.046 lb/MWh. Therefore, Delta Energy Center had a NO_x emission rate that was almost three times better than the average aging power plant with SCR. While certain aging power plants may have emission rates comparable to new combined-cycle units, it is misleading to indicate that there is only a slight difference between the two groups as a whole. Calpine requests that the conclusions on page 4 be reexamined.

Thank you for considering Calpine's comments. Please contact me if you have any questions regarding these issues.

Sincerely,

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